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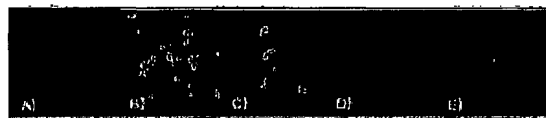
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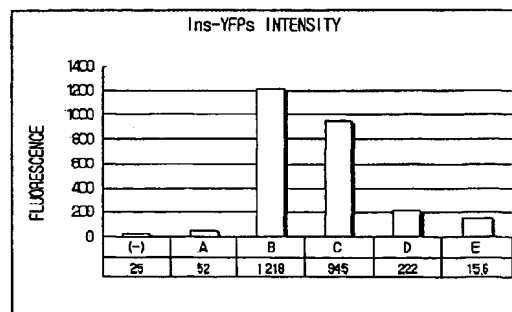
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[Continued on next page]

(54) Title: **ENHANCED INSERTED YELLOW FLUORESCENCE PROTEIN AND ITS APPLICATION**

A



B

(57) Abstract: Disclosed are mutated genes for green fluorescence proteins and enhanced inserted YFPs expressed therefrom. The mutant proteins not only maintain their fluorescence even at 37 °C, but also exhibit about 20 times stronger fluorescence intensities in comparison to the conventional fluorescence proteins. Accordingly, the mutant fluorescence proteins of the present invention can be used as biosensors for detecting and analyzing the bioactivities of desired materials.

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A. CLASSIFICATION OF SUBJECT MATTER

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 : C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PubMed, Delphion

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y A	Nagai T., et al. "Circularly permuted green fluorescent proteins engineered to sense Ca ²⁺ " Proc. Natl. Acad. Sci. USA, 2001, Vol. 98(6): pages 3197-3202, See the abstract.	1-7, 10-11 8-9, 12-15
Y A	Griesbeck O., et al. "Reducing the environmental sensitivity of yellow fluorescent protein" J. Biol. Chem., 2001, Vol. 276: pages 29188-29194, See the abstract.	1-7, 10-11 8-9, 12-15
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Y A	Tyas L., et al. "Rapid caspase-3 activation during apoptosis revealed using fluorescence-resonance energy transfer" EMBO Rep., 2000, Vol. 1(3): pages 266-270, See the abstract.	1-7, 12-13 8-11, 14-15
A	Kim J. E., et al. "Subcellular localization of hepatitis C viral proteins in mammalian cells" Arch. Virol., 1999, Vol 144: pages 329-343, See the abstract.	1-15
A	US 5998204A (Tsien et al.), Dec. 07, 1999, See the whole document.	1-15

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5998204 A	Dec. 07, 1999	WO 9840477 A1 AU 6702398 A1 EP 0970199 A1	Sep. 17, 1998 Sep. 29, 1998 Jan. 12, 2000